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The Committee on Proceedings announced the publication of the Proceedings for December, 1863.

Dr. Wilcox presented for publication a continuation of his paper for January 12th.

February 23d.

Vice-President BRIDGES in the Chair.

Twenty-two members present.

The following was presented and unanimously adopted:—

Resolved, That the specimens of antique art belonging to the Academy be deposited in the Museum of the American Philosophical Society, provided that they shall be returned on demand, and that the Curators of the Society shall give a receipt for the same to the Curators of the Academy.

On report of the respective committees, the following were ordered to be published:—

The Crania of COLYMBUS TORQUATUS and C. ADAMSII compared.

BY ELLIOTT COUES, M. D.

I have already, in a previous paper,* presented the external characters of size, form, and color by which the *C. Adamsii* may be distinguished from the common *C. torquatus*. To more completely substantiate the claims of the former to specific distinction, which I understand is denied it by some ornithologists, I have taken advantage of an opportunity of comparing the crania of the two species, to present the marked points of difference, as regards size and shape, which an examination of the skulls shows to exist. It is perfectly easy to diagnose either species from the characters of their crania alone.

As might be expected from the relative dimensions of the two birds, the cranium of *C. Adamsii* is considerably larger than that of *C. torquatus*. The difference is particularly striking in the length of the skull, taken as a whole, as well as in the longitudinal dimensions of its individual elements. The total length exceeds that of *C. torquatus* by fully an inch; and the difference in the length of particular bones, as the intermaxillary, palatals, malars, vomer, etc., is proportionately as much. In connection with this increase in the length of skull, there is to be taken into consideration another point, which confers upon the cranium of *C. Adamsii* a marked difference in general contour,—viz., its remarkable narrowness. In width at the several points, the cranium by no means preponderates over that of *C. torquatus* in proportion to its marked difference in length. Thus, is diameter across the fronto-maxillary suture, or across the anterior or posterior orbital process, is, both absolutely and relatively, but little greater than that of *C. torquatus*, while across the mastoid processes the width is absolutely the same, and therefore relatively less in *C. Adamsii*.

The external character, which is perhaps the most distinctive feature of *C. Adamsii*—viz., the size and shape of the bill, corresponds, of course, to a like modification of the proportions of the intermaxillary and inferior maxillary bones. In fact, the difference in the relative proportions of the crania of the

* Vide Proc. Acad. Nat. Sci., Philada., April, 1862, p. 227.

two birds is produced, in great measure, by the greater developement and somewhat different shape of these two bones. The discrepancies in length have already been adverted to. Those of shape consist chiefly in the greater elevation of the apices of the inter- and infero-maxillary bones. The line formed by the mandibular ramus of the intermaxillary and the malar bone, is in *torquatus* a gentle curve, the concavity of which looks downwards; in *Adamsii* it is a straight line. The commissural edge of the inferior maxillary of *torquatus* is about straight as far as the angle of the jaw; in *Adamsii* it is a gentle curve, whose concavity looks upwards. The greater production of the inter- and infero-maxillary bones makes their apices much more acute in *Adamsii* than in *torquatus*, while, at the same time, in consequence of the comparative narrowness of the skull of the former, the angle of divergence of the rami of these two bones is not greater, and the bill on this account no wider. The symphysis of the mandibular rami is longer in *Adamsii* than in *torquatus*, and the prominence at the angle of the jaw is more marked.

In addition to the above, it may be said, in general terms, that the various ridges and depressions of the skull of *Adamsii* are more strongly marked than those of *torquatus*, corresponding to the superior size and muscularity of the former. The occipital protuberance and crest, the interparietal and the median frontal ridge are exceedingly prominent, while at the same time, the crotaphyte depression, the temporal and digastric fossæ and the supra orbital fossæ for the lodgement of the nasal glands are deep and well defined. The frontal bone of *Adamsii* rises more rapidly than that of *torquatus*, leaving a deeper fossa at the fronto-maxillary suture, and also producing chiefly the difference which exists in the absolute height of the two crania.

I append the detailed comparative measurements of the most important dimensions of the skulls of the two birds, which will show at a coup d'œil the absolute and relative difference in size and shape. Notice particularly the great discrepancies in the longitudinal dimensions as compared with the slight difference in the several transverse measurements.

Comparative Measurements.

	<i>C. torquatus.</i>	<i>C. Adamsii.</i>
Length from apex of intermaxillary to occipital protuberance.....	5.80*	6.80
“ “ “ fronto-maxillary suture....	3.25	4.15
“ “ “ anterior orbital process	3.65	4.40
“ “ “ posterior do. do.	4.85	5.75
“ “ “ apex of os lachrym.....	3.65	4.40
“ “ “ nasal foramen	1.65	2.05
“ “ “ maxillo-malar suture	2.90	3.55
“ “ “ tympano-malar artic	5.30	6.20
“ “ “ apex of vomer	2.60	3.20
“ “ “ posterior end of palatals....	4.50	5.10
“ of inferior maxillary.....	5.60	6.60
“ of symphysis of inferior maxillary.....	1.10	1.40
“ from apex of inferior maxillary to angle of jaw	4.20	5.00
“ of nasal foramen.....	1.20	1.40
Width of skull across fronto maxillary suture80	.90
“ “ “ anterior orbital processes	1.08	1.20
“ “ “ posterior do. do.	1.95	2.00
“ “ “ mastoid processes	1.35	1.35
Greatest height of skull (without lower jaw).....	1.50	1.70
“ depth of inferior maxillary.....	.70	.80

* English inches and hundredths.